FACT SHEET FOR NPDES PERMIT WA0037541

FACILITY NAME: Longview Energy Development, L.L.C.

SUMMARY

Longview Energy Development, L.L.C (LED), is a proposed 290 MW natural gas-fired turbine, combined cycle power generation facility, located at the Port of Longview in Longview, Washington. This unique facility will use reclaimed effluent from the local wastewater treatment plant as the primary source of cooling water, then return the blowdown back to the treatment plant's existing outfall. This innovative approach is the result of a cooperative agreement between LED and the Cowlitz Sewer Operating Board, which operates the Cowlitz Water Pollution Control Plant. In addition to the beneficial use of the reclaimed water, LED will reduce the thermal loading currently going to the Columbia River. LED may also use groundwater obtained from the Port of Longview, as an alternative or supplemental cooling water source.

Issuance Date: December 31, 2001

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

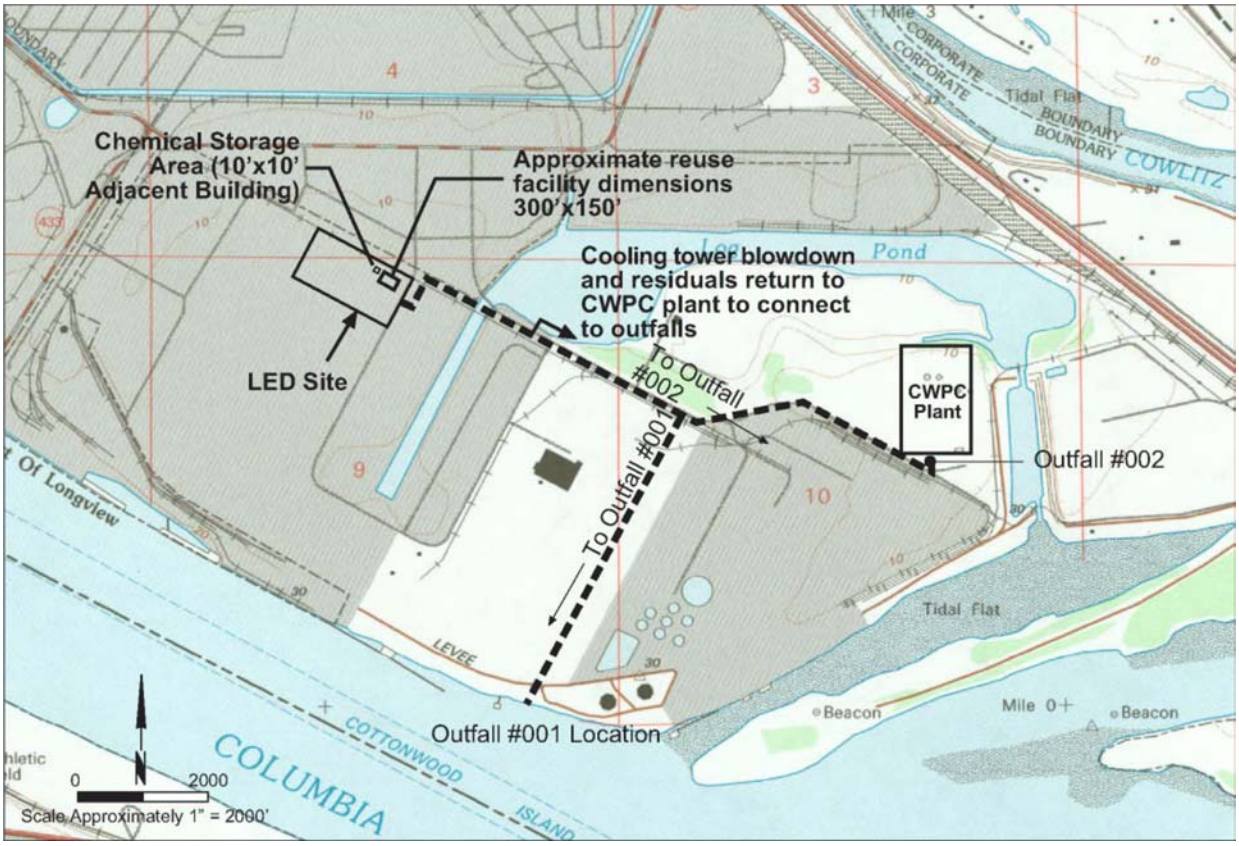
The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	Longview Energy Development, L.L.C. c/o Enron North America Corp. 121 SW Salmon St. 3WTC0306 Portland, OR 97204
Facility Name and Address	Longview Energy Development, L.L.C. (LED) 19 International Way Longview, WA 98630
Type of Facility	290 MW Combined Cycle Power Plant
SIC Code	4911
Discharge Locations	Outfall 001: Columbia River, river mile 67.5: Latitude: 46° 5' 40" N, Longitude: 122° 56' 10" W. Outfall 002: Sanitary Sewer to Cowlitz Water Pollution Control Plant
Water Body ID Number	WA-CR-1010

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY



HISTORY

The Longview Energy Development (LED) facility is a nominal 290 megawatt (MW) natural gas-fired, combined-cycle power plant to be located at the Port of Longview industrial park south of Longview, Washington. The LED project is currently at an advanced stage of development and anticipates beginning construction in fourth quarter of 2001 to achieve an expected commercial operations date of July 2003.

Several contracts and permits have been achieved to enable LED to attain its advanced development stage. An air permit for a 249 MW facility was received from the Southwest Clean Air Agency on May 14, 2001. An amendment to the air permit, allowing LED to increase its output to 290 MW was submitted to the Southwest Clean Air Agency on June 22, 2001. The amended air permit was received on September 4, 2001.

LED has also achieved a Revised Mitigated Determination of Non-Significance for the 290 MW facility and SEPA compliance. This is discussed further in the SEPA Compliance section of this document. In addition, the Bonneville Power Administration (BPA), after considering the economic and environmental impacts of LED, signed a Record of Decision on July 31, 2001.

Finally, LED has secured major equipment to meet the anticipated commercial operations date and has entered into options or agreements with several counterparties to secure land, gas, electric interconnection, industrial water, effluent water for reclamation, and a wastewater discharge route.

LED is the first power project in the state of Washington to use a dual water cooling-source approach with reclaimed water as the primary cooling source and ground water as either an alternate or supplemental source. LED will obtain effluent from the Cowlitz Water Pollution Control (CWPC) wastewater treatment plant operated by the Cowlitz Sewer Operating Board (CSOB). Up to 2.3 million gallons per day of the CWPC's treated effluent will be diverted and piped to the LED facility prior to discharge through the CWPC's outfall on the Columbia River. LED will build, own, operate and maintain a reclaimed water facility to further treat this effluent. The Washington State Departments of Health and Ecology are currently working on a reclaimed water permit that will be issued to the CSOB. LED's contractual arrangement with the CSOB allow it to take the responsibility for treating the effluent to comply with the standards in the reclaimed water permit. LED's alternate or supplemental cooling source, ground water, will be obtained from the Port of Longview.

LED will obtain effluent by connecting into the CWPC's treated effluent discharge pipeline. LED will connect its wastewater discharge line into the CWPC's discharge line further downstream from the effluent connection, thus allowing LED to discharge non-contact plant wastewater (Outfall 001) directly to the Columbia River through the CWPC outfall. LED's NPDES wastewater discharge permit includes separate requirements or limits for the plant blowdown stream dependent on the influent source (either reclaimed water or ground water). The ground water limits and requirements set forth apply whether ground water is used as a 100% alternate source to the reclaimed water or as any percentage supplement.

INDUSTRIAL PROCESS

LED will be a year-round, base-load electric generation facility that is expected to commence commercial operation in July 2003 and has an expected life of approximately 25 to 30 years. To operate LED and the reclaimed water facility, approximately 20 full-time employees will be needed. The anticipated staff will include a plant manager, a plant engineer, an administrative assistant, 2 mechanics, 2 instrument/electric technicians, 12 operators to cover 3 shifts, and 1 floating operator to cover vacations and special situations.

The main industrial process at the LED facility will be the conversion of natural gas fuel to electricity. Natural gas will be burned in a combustion turbine that will drive an electric generator. The combustion turbine exhaust will flow through a heat recovery steam generator (HRSG) producing high temperature, high-pressure steam. The steam will be delivered to a steam turbine where it will drive a second electric generator. Spent steam from the steam turbine will be condensed to allow this high quality water to be recycled. The facility will also include an evaporative cooling tower for cooling the steam condenser.

The cooling water for the project will be either reclaimed water from the CWPC or well water provided by the Port of Longview. Effluent received from the CWPC will be treated at the LED site and used in the cooling tower process. In order to use reclaimed water, LED must treat the CWPC effluent to the Class A reclaimed water standard. The reuse treatment process proposed for the LED project includes coagulant injection (ferric chloride or alum), dual-media filtration along with the Biological Aerated Filters (BAF) process, and disinfection with free chlorine to achieve this standard. It is estimated that the reclaimed water will be cycled approximately five and one-half times in the cooling tower prior to discharge to the outfall.

Should groundwater from the Port of Longview be needed for cooling water, the water will be treated to remove iron and manganese. The recommended treatment process will be oxidation followed by pressure

filtration. It is estimated that the well water will be cycled approximately four times in the cooling tower prior to discharge to the outfall.

Potable water and make-up water to the HRSG will be provided by the City of Longview. Blow down from the HRSG will be sent to the cooling tower prior to discharge. Sanitary sewer flows will be discharged into the local collection system and then conveyed to the headworks of the CSOB plant. Residuals from the reclaimed and well water treatment process may be sent to the CSOB plant headworks or disposed of as a solid waste.

DISCHARGE OUTFALLS

LED's outfall 001, the cooling tower blowdown stream, will share the existing CWPC outfall diffuser discharging into the Columbia River at river mile 67.5. The diffuser consists of a 30-inch diameter concrete coated steel pipe with fourteen 6.5-inch diameter orifices facing offshore and alternate orifices are angled up at 20 degrees above horizontal. There is also a 10-inch diameter port on the downstream end of the diffuser. The diffuser lies parallel to the flow of the river at a water depth of approximately 40 feet and is 77 feet in length.

The outfall diffuser was inspected by divers on June 6, 2001 and found to be intact and in excellent condition. All ports were found to be unobstructed and flowing freely.

Outfall 002 will consist of various sidestreams from the water reclamation plant and power generating facility. In either operating mode- reclaimed water or groundwater- there will be waste streams from the treatment processes which may be discharged to the sewer system and treated at the Cowlitz County Water Pollution Control Facility.

For the reclaimed water option, the components of the residuals will include solids from the backwash of the biological filter and backwash from the rapid sand filters. The residuals from the rapid sand filters will include coagulant provided for the flocculation process.

The estimated quantities of residuals for the reclaimed water facility are as follows:

	Flow (mgd)	SS (mg/L)	SS (lbs/day	BOD (1) (mg/L)	BOD (lbs/day)
BAF Backwash	0.120	750	750	250	250
Filter Backwash	0.055	1680	770	250	115
Total Residuals (Outfall 002)	0.175	1040	1520	250	365

(1) Assumes 250 mg/l for stabilized residuals

For the groundwater option, the components of the residuals will be backwash from the iron removal process. This will include oxidized iron and a coagulant.

The estimated quantities of residuals for the groundwater alternative are as follows:

	Flow (mgd)	SS (mg/L)	SS (lbs/day
Filter Backwash	0.058	156	76
Total Residuals (Outfall 002)	0.058	156	76

The actual quantities of residuals will depend on the water quality and chemical dosages applied. The estimated quantities are conservative and actual quantities of flow and total solids may be less. BOD loading should be negligible for this wastewater source.

PERMIT STATUS

This is a new, previously unpermitted facility.

An application for a permit and engineering report was submitted to the Department on June 15, 2001. Ecology requested additional information and some clarifications. A revised application and engineering report was submitted on August 22, 2001 (Golder Associates, 2001). Ecology issued a completeness determination, application acceptance, and engineering report approval on September 6, 2001.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

This is a new facility, consequently no compliance records are available.

WASTEWATER CHARACTERIZATION

The characterization of the proposed Outfall 001 is primarily shown in the Appendix C, Reasonable Potential worksheet and discussed under the Surface Water Quality Based Limits section below.

Quantity and concentration estimates for Outfall 002 are discussed in the Discharge Outfall section above. Local limits for the Cowlitz POTW will be used to initially permit this wastestream. However, the BAF and filter backwash solids might find a more beneficial use, such as soil cover, soil amendment, or a component of compost. If an option such as these can be found, they will not be discharged to the POTW. Before one of these options can be used, these solids would likely need to be thickened. Any thickening process will generate free liquid, which could be discharged to the POTW via outfall 002. At this time, the permit will be written to cover all scenarios, including the residuals discharged to the POTW headworks. If this discharge exceeds the local limits of 250 mg/L for TSS and/or BOD, LED will be subject to high strength waste fees from the CSOB. Also, if discharged, Ecology will require further characterization of these residuals, especially for metals content. If metals or other constituents are found in sufficient quantity, other restrictions could be placed on the disposal of these residuals.

SEPA COMPLIANCE

Cowlitz County was the lead SEPA agency for this project. LED's expanded SEPA checklist was submitted to and reviewed by Cowlitz County. Cowlitz County issued a Mitigated Determination of Non-Significance (MDNS) for LED as a 249 MW facility on April 18, 2001. The public comment period ended on May 2, 2001. Few comments were received and Cowlitz County indicated that SEPA compliance had been achieved as of May 3, 2001.

On July 18, 2001, a revised SEPA Checklist and Environmental Report for LED was submitted as a 290 MW facility. On August 6, 2001 Cowlitz County issued a Revised Mitigated Determination of Non-

Significance for the project. Cowlitz County stated that, "The increase in output from 249 megawatts to 290 megawatts will result in no new significant adverse impacts."

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this facility are taken from the Longview Energy Development, L.L.C. (LED) Engineering Report for Water Supply and Wastewater Discharges prepared by Golder Associates. The primary cooling water source for the project will be reclaimed water from the Cowlitz Water Pollution Control (CWPC) plant owned and operated by the Cowlitz Sewer Operating Board (CSOB). The alternate water source will be groundwater from wells at the Port of Longview. The groundwater source may be used to supplement or replace the reclaimed water source if CWPC is unable to provide sufficient quantity of reclaimed wastewater. It may also be an useful alternate source if effluent from the CWPC does not meet specifications or if there is some temporary difficulty meeting the Class A reuse specifications established by Ecology and Health in the CWPC reclaimed water permit. The design flow schematics for the primary and alternate water sources are shown in Figures 1 and 2.

Figure 1: Flow Schematic for Reclaimed Wastewater Alternative (Primary Source)

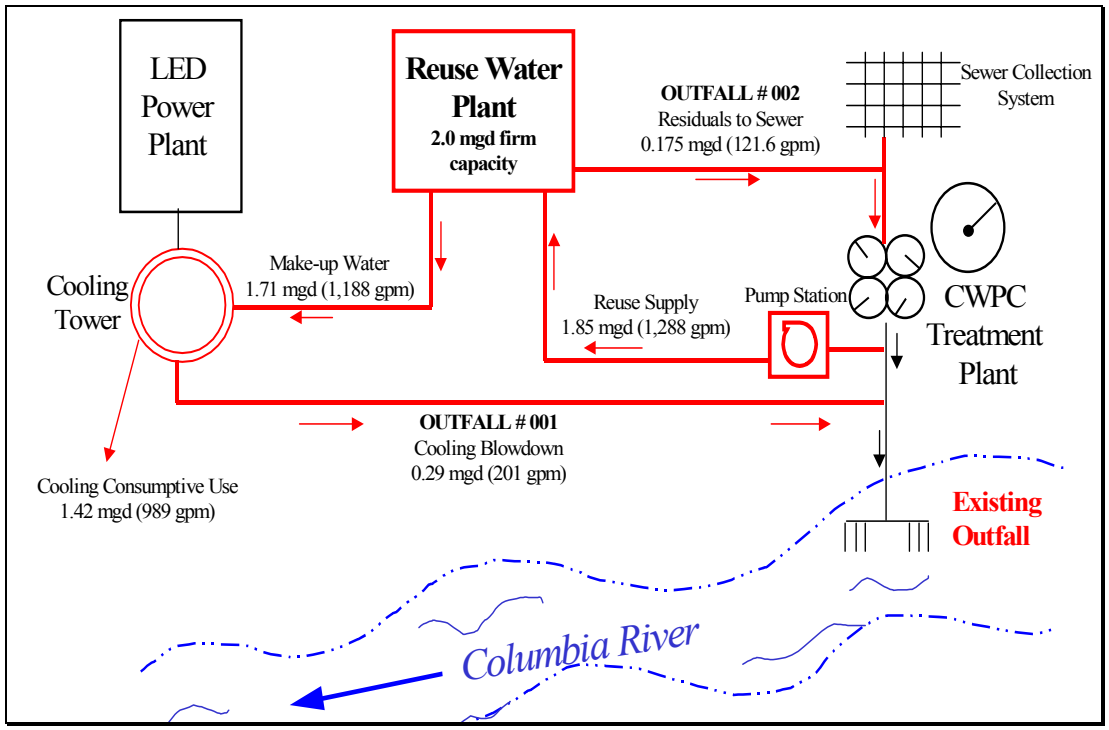
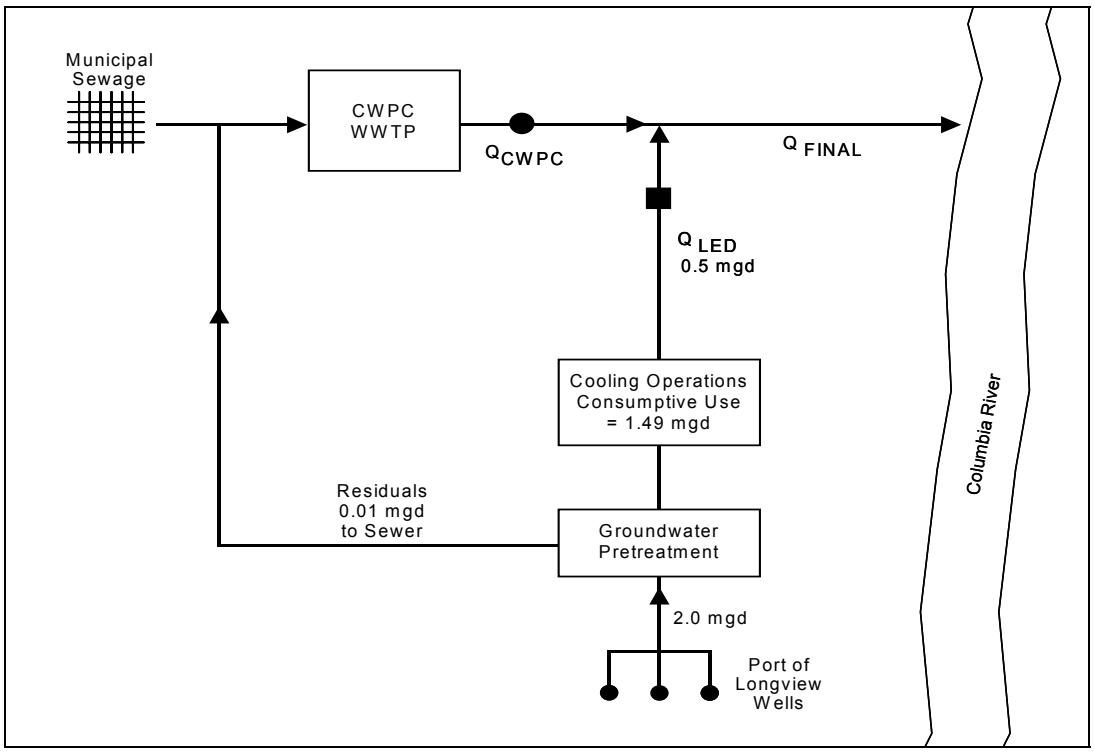


Figure 2: Flow Schematic for Groundwater Alternative (Secondary Source)



The reclaimed water source will allow for more cycles within the cooling tower than the groundwater source due to high mineral loading in the groundwater. Consequently, the design effluent discharge from the tower is different for each source as follows:

Table 1: Design Criteria for LED Wastewater Discharge

Parameter	Design Quantity
Monthly average discharge (using primary reclaimed water source)	0.3 MGD
Instantaneous peak discharge (using primary reclaimed water source)	0.3 MGD
Monthly average discharge (using groundwater source)	0.5 MGD
Instantaneous peak discharge (using groundwater source)	0.5 MGD
Production	290 MW Electric Power

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limits are established in 40 CFR Chapter 1 Part 423. Categorical standards for new sources listed in Subpart 423.15 will apply. The New Source Performance Standards (NSPS) categorical limitations for cooling tower blowdown are listed below.

Table 2: NSPS Technology-Based Effluent Limits for Cooling Tower Blowdown (Outfall 001)

Parameter	Criteria
pH	6.0 to 9.0
PCBs	Discharge prohibited
TSS	100 mg/L max day 30 mg/L 30-day average
Oil and Grease	20 mg/L max day 15 mg/L 30-day average
Free Available Chlorine	0.5 mg/L maximum 0.2 mg/L average
Chromium	0.2 mg/L max day 0.2 mg/L 30-day average
Zinc	1.0 mg/L max day 1.0 mg/L 30-day average
126 Priority Pollutants	No detectable amount

Some low levels of priority pollutants, such as metals and some organic chemicals, may exist routinely or intermittently in CWPC's effluent, and thus could show up in LED's effluent. The limitation in the federal regulation reads "No detectable amount" of "The 126 priority pollutants (Appendix A) *contained in chemicals added for cooling tower maintenance*..." (italics added). Therefore, compliance with this condition could require LED to show that any priority pollutants were not added by LED. When sampling for priority pollutants, LED could simultaneously sample the reclaimed water plant effluent. If

any priority pollutants are detected in LED's influent and effluent and the effluent mass is no greater than the influent, LED will still be in compliance if they can show that the pollutant(s) in question was not added by chemical addition.

Local limits applicable for Outfall 002, as per CWPC policy, are as follows:

Table 3: Pretreatment Limits for Residuals Discharge to Sewer (Outfall 002)

Parameter	Criteria
pH	6.0 to 9.0
TSS	250 mg/L max. day*
BOD	250 mg/L max. day*

* above these concentrations, CWPC may apply a high strength waste surcharge. These limits will not be included in the permit.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

There is no saltwater intrusion into the Columbia River that reaches as far as mile 67.5. However, the river is tidally influenced. Flood tides cause currents to decelerate and occasionally reverse near high water. Consequently, the Columbia River at mile 67.5 is classified as an estuary for the purposes of defining mixing zones.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

LED's outfall 001 will discharge cooling tower blowdown to the existing effluent line for Cowlitz Water Pollution Control Plant. This municipal wastewater treatment facility has an existing NPDES discharge permit (WA0037788) which authorizes a mixing zone.

DESCRIPTION OF THE RECEIVING WATER

LED's outfall 001 will discharge to the Columbia River near river mile 67.5, which is designated as a Class A receiving water in the vicinity of the outfall. The facility will discharge non-contact cooling water via the Cowlitz Water Pollution Control (CWPC) plant outfall and diffuser. The discharge point is just downstream of the confluence of the Cowlitz River with the Columbia River. Other nearby point source outfalls include Longview Fibre. No significant nearby non-point sources of pollutants are known at this time.

Characteristic uses include the following: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact

recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	20 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

States are required under Section 303(d) of the Clean Water Act to compile lists of waters that do not meet water quality standards, and develop plans to bring those waters into compliance. The Columbia River is listed for temperature and dissolved gases. Excess dissolved gases is associated with dams on the river. LED's effluent will not contribute to an exceedance of dissolved gases. In addition, the Columbia River is listed for the following parameters: WRIA 26- upstream of the mouth of the Cowlitz River: bis(2-ethylhexyl) phthalate; WRIA 25- downstream from the Cowlitz River: 4,4'-DDE, arsenic, bis(2-ethylhexyl)phthalate, PCB-1248, PCB-1254, and PCB-1260. LED is expected to contribute no additional loadings of these pollutants. All these parameters will be monitored via the priority pollutant testing required in the permit, which will support the TMDL effort.

The only 303(d) listing relevant to the CWPC discharge is for temperature in the Columbia River, which commonly exceeds the 20°C standard during late summer. Early planning for a TMDL to address the listed 303(d) pollutants is currently underway. The Cowlitz River, which has a temperature standard of 18°C, is not on the 303(d) list of impaired waters.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Mixing Zones. Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. The CWPC NPDES permit authorizes both acute and chronic mixing zones for the effluent discharge. The mixing zones authorized in Section S1.B of CWPCs NPDES permit are:

> *The chronic mixing zone boundary is not to exceed 235 feet beyond the upstream diffuser port in the upstream direction nor exceed 235 feet beyond the downstream diffuser port in the downstream direction. The width of the chronic mixing zone shall not exceed 25 percent of the width of the Columbia River.*
>
> *The acute mixing zone boundaries are ten percent of the chronic mixing zone boundaries or 23.5 feet upstream and downstream of the outboard diffuser ports and not to exceed 2.5 percent of the river width.*

Dilution Factors. The dilution factors of effluent to receiving water that occur within these zones have been determined at critical conditions by the use of the dilution models PLUMES/UM3 and UDKHDEN. The dilution factors are primarily controlled by and vary as a function of the flows from the CWPC plant. The dilution factors, including the effects of reflux (tidal recirculation of effluent) have been determined to be within the following ranges, depending on CWPC flows:

	Acute	**Chronic**
Aquatic Life (reclaimed water source)	6.4 to 37.8	21.7 to 82.3
Aquatic Life (groundwater well source)	6.3 to 27.0	20.6 to 57.2

Critical Ambient Conditions. Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical discharge condition for the Columbia River near Longview is the seven day average low river flow with a recurrence interval of ten years (7Q10). The critical 7Q10 discharge at this location is estimated at 97,400 cfs.

Ambient data at critical conditions in the vicinity of the outfall was taken from Ecology's ambient monitoring program. The ambient water that flows past the CWPC outfall generally originates from the Cowlitz River due to the short distance upstream to the confluence. Ecology has a long-term water quality monitoring station located on the Cowlitz River just upstream of the confluence with the Columbia River. Ecology data from 1992-2000 at monitoring station 26B070 were used to establish the ambient concentrations for this study. Ecology's *Permit Writer's Manual* stipulates the critical ambient data as the 90th percentile concentrations. These critical concentrations are shown in the table below. The values for temperature, pH, and ammonia nitrogen are direct calculations of the 90th percentile values for all annual data. Values for the critical months of July through September are used to calculate ammonia criteria, but are not shown below. There are less than 20 samples for the metals, therefore, the 90th percentile is estimated at 1.74 times the geometric mean, as recommended in the *Permit Writer's Manual*.

Table 4: Annual Ambient Water Quality Data from Ecology Monitoring Station 26B070

Water Quality Parameter	**No. Samples**	**90th Percentile Value**	**Maximum Value**
Temperature, °C	111	14.9	19.0
pH	111	7.80	8.50
Ammonia-N, mg/L	104	0.02	0.07
Arsenic, µg/L	5	1.45	–
Cadmium, µg/L	13	0.05	–
Copper, µg/L	5	1.62	–
Nickel, µg/L	16	0.94	–

Water Quality Parameter	No. Samples	90th Percentile Value	Maximum Value
Lead, µg/L	15	0.07	–
Zinc, µg/L	16	2.78	–

NOTE: Metals 90th percentile values are estimated as 1.74 times geometric mean per Ecology Permit Writers' Handbook.

Effect of Longview Fibre on Ambient Data. Longview Fibre discharges 66 mgd of effluent through a diffuser approximately 500 feet upstream of the CWPC outfall. Effluent from the Longview Fibre (Fibre) outfall flows through the CWPC mixing zone. Thus, the Fibre discharge may increase the ambient concentration of pollutants of concern in the CWPC mixing zone. Fibre's mixing zone study established a dilution factor of 120 using the model CORMIX.

The only aquatic life toxicants detected in Fibre's effluent were ammonia, lead, and zinc. Longview Fibre effluent is also a significant source of heat. The resulting concentrations of these parameters at the CWPC mixing zone are used as ambient data for the CWPC/LED combined discharge.

BOD_5--LED's discharge is not a significant source of BOD loading and would not have any effect on dissolved oxygen in the Columbia River. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

Temperature-- Temperature is the primary water quality parameter with a potential for impact from the LED project. A conservative projection of the maximum blowdown water temperature is 85°F (29.4°C). At this temperature LED will meet water quality standards at the mixing zone boundary due to the Cowlitz River influence. The maximum observed temperature in the Cowlitz River in nine years of data was 19°C. The combined CWPC/LED discharge will not cause temperature to exceed 20°C at the mixing zone boundary, or a temperature increase of greater than 0.3°C.

The Columbia River is on the 303(d) list for temperatures that exceed 20°C during late summer. Ecology and EPA have begun the process to develop a Total Maximum Daily Load (TMDL) to bring the Lower Columbia River into compliance with the temperature standard. Ecology has adopted the following policy pertaining to new discharges to listed waterbodies where the TMDL has not been completed:

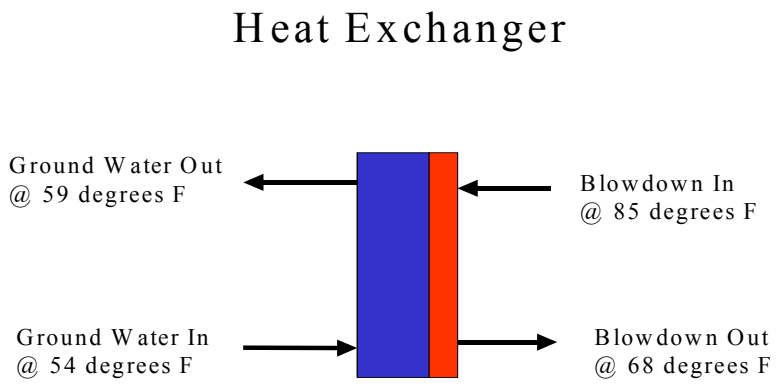
> *A new discharge to a [303(d)] listed waterbody can not be allowed if the discharge will result in a reduction of water quality. In some cases a discharger may be allowed to discharge listed pollutants by mitigating the discharge or discharging seasonally.*

Reclaimed Water Source. The use of reclaimed water from the CWPC plant will fully mitigate the thermal loading from the LED project, thus complying with the policy cited above. The LED project will produce a net reduction in heat load to the Columbia River when compared to the current CWPC discharge without the LED project. At critical summer conditions, the thermal load of the current CWPC discharge is 309 million Btu/day. With the LED project, the heat load of 0.3 mgd of 85 °F blowdown water (43 million Btu/day) would be more than offset by the reduced load from the CWPC effluent flow (108 million Btu/day). The use of LED's primary cooling source, reclaimed water, would produce a net reduction of 65 million Btu/day to the Columbia River.

Because the water quality standard for temperature would be met at the mixing zone boundary, and thermal loading would be fully mitigated, the LED discharge limit for temperature is 85° F for the reclaimed water source.

Ground Water Source. The alternate or backup source of cooling water will be from Port of Longview wells. The blowdown temperature of 85 °F would constitute an additional thermal load to the Columbia River with no mitigation. This is contrary to the 303(d) policy described above. Therefore, LED will be required to cool the effluent to meet the water quality standard of 68 °F when 100% well water is used as the cooling water source.

LED proposes to use a plate and frame heat exchanger to transfer thermal energy from the warm cooling tower blowdown to the relatively cool groundwater, without mixing the two fluids. A simplified schematic is shown below. In this case, a large quantity of groundwater is heated 5 degrees F by a small quantity of blowdown which is cooled by 17 degrees F.



Combined Water Source. LED may use a combination of well water and reclaimed water if the reclaimed water source is interrupted, insufficient, or does not meet specifications. Calculations of thermal loading shows that for all combinations of reclaimed and groundwater, there will be no net thermal impact to the river (see the table below). The combination of the heat transfer via the heat exchanger with the reduction in flow (and consequently BTUs) in the CWPC effluent results in no thermal impact on the river.

Without the heat exchanger the critical proportions allowing for no net thermal impact would be 0.98 mgd of CWPC effluent and 0.88 mgd of groundwater. The 0.98 mgd of CWPC effluent at 75 °F removed from direct discharge and diverted to the LED project represents a heat load reduction of 57 million Btu/day into an ambient at 68 °F. This is equal to the thermal load of a combined groundwater and reclaimed water discharge from LED at a rate of 0.40 mgd and a temperature of 85 °F.

Therefore, use of the effluent cooling heat exchanger is required when groundwater constitutes more than 47 percent of the combined makeup water source. Due to design considerations and simplicity, groundwater will probably be run through the heat exchanger whenever groundwater is used. The 68 °F limit will only be in effect when 100 percent groundwater is being used. To verify that the heat exchanger functions at least as well as the assumptions in the following table, LED will be required to conduct a special study early in the permit term, to confirm the ability of the heat exchanger to attain the expected amount of effluent cooling.

100% Groundwater	(mgd)	2.00
100% Reclaim Water	(mgd)	1.85
100% GW Blowdown	(mgd)	0.50
100% RCL Blwdn	(mgd)	0.30
Temp. Effl ^{o}F		75.00
Temp. Blwdn w/o cooling ^{o}F		85.00
Temp River ^{o}F		68.00

% GW	Q gw (mgd)	Q rlm (mgd)	Q gw Bldwn (mgd)	Q rcl Bldwn (mgd)	Temp Bldwn ^{o}F	CWPC load reduct. MBTU	Gw load MBTU	RCL Load MBTU	LED Load MBTU	Net Load MBTU
0%	0.00	1.85	0	0.3	85.0	108	0.00	42.5	42.53	-65
10%	0.20	1.67	0.05	0.27	83.3	97	6.38	34.5	40.83	-56
20%	0.40	1.48	0.1	0.24	81.6	86	11.34	27.2	38.56	-48
30%	0.60	1.30	0.15	0.21	79.9	76	14.89	20.8	35.73	-40
40%	0.80	1.11	0.2	0.18	78.2	65	17.01	15.3	32.33	-32
50%	1.00	0.93	0.25	0.15	76.5	54	17.72	10.6	28.36	-26
60%	1.20	0.74	0.3	0.12	74.8	43	17.01	6.8	23.82	-19
70%	1.40	0.56	0.35	0.09	73.1	32	14.89	3.8	18.71	-14
80%	1.60	0.37	0.4	0.06	71.4	22	11.34	1.7	13.04	-9
90%	1.80	0.19	0.45	0.03	69.7	11	6.38	0.4	6.81	-4
100%	2.00	0.00	0.5	0.00	68.0	0	0.00	0.0	0.00	0

pH--The impact of the discharge on pH has been evaluated. It has been determined that compliance with the technology-based effluent limits for pH will ensure compliance with the water quality standard for pH.

Turbidity--The impact of turbidity was evaluated based on the range of turbidity in the effluent and turbidity of the receiving water. Due to the large degree of dilution, it was determined that the turbidity criteria would not be violated outside the designated mixing zone.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the combined CWPC/LED discharge: chlorine, ammonia, and metals. A reasonable potential analysis was conducted on these parameters to determine whether or not effluent limitations would be required in this permit. Both reclaimed water and groundwater sources were evaluated.

The determination of the reasonable potential for chlorine, ammonia and metals to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 at critical conditions. The critical condition in this case occurs during peak flows from the CWPC plant, which were evaluated at 2013 design conditions. The parameters used in the critical condition modeling and the results of the reasonable potential analysis are presented in Appendix C.

Reclaimed Water Source. The CWPC plant has a reasonable potential to exceed water quality standards for chlorine, ammonia, copper, lead, and mercury as defined by Ecology and EPA protocol. Therefore, the CWPC NPDES permit includes effluent concentration limits for these toxicants. LED will not add to ammonia and metals delivered in the reclaimed wastewater stream from the CWPC plant. As a result of evaporation during the cooling process, constituents in the CWPC wastewater will be concentrated. The mass of these toxicants discharged back into the CWPC outfall will be equal to or less than the mass delivered by CWPC to LED in the reclaimed water source.

Water quality modeling presented in Appendix C demonstrates that LED's discharge from the proposed reclaimed wastewater stream would have a neutral (*i.e.* neither positive or negative) impact on compliance with water quality standards at the mixing zone boundary.

Section 402 of the Clean Water Act requires NPDES permit limits for all discharges that add pollutants to public waters. However, the proposed LED project should add no ammonia or metals to the final discharge to the Columbia River. All ammonia and metals in the final effluent should originate from CWPC, which is already permitted under CWPC's NPDES permit. With these assumptions, LED has no reasonable potential to contribute to potential violations of the water quality standards for these toxicants, as long as no new toxics, such as metals, are added.

LED is not expected to add any mass of these toxicants to the wastewater returned to the CWPC outfall. Some low levels of parameters, such as metals and some organic chemicals, may exist routinely or intermittently in CWPC's effluent, and thus could show up in LED's effluent. Modeling has shown that LED will not cause an exceedance of water quality criteria for metals, if no metals are added by LED (Golder, 2001). Reclaimed water has not previously been permitted as a cooling source for power plants, and the aforementioned determination is based on analysis rather than past data. Therefore, this issue will be addressed in the following manner. Mass-based limits will be placed in the permit and will be effective when only reclaimed water is used, based on CWPC limits for these metals and LED's reasonable potential analyses, which are protective of water quality. When sampling for compliance with these limits, LED may simultaneously measure the mass of these metals in the reclaimed water supply. To successfully accomplish this comparison, 24-hour composite samples of both the CWPC and LED effluents must be collected and analyzed. The CWPC effluent sample must also represent that same parcel of water that is sampled as LED effluent. Therefore the CWPC sample collection period would begin before the LED effluent sampling period, to allow for the time lag for residence time in the reclamation plant. These analyses will therefore show compliance with the limits, and indicate whether or not LED is contributing any mass of these pollutants. If any of the parameters are detected in LED's influent and effluent and the effluent mass is no greater than the influent mass, then LED will be considered to be in compliance for those parameters. This data can then be used for future refinement of these limits and associated monitoring requirements.

LED is expected to add no additional metals or other priority pollutants. CWPC's effluent limits are protective of water quality. Therefore, if LED add none of these pollutants, then water quality limits will not be exceeded in the Columbia River. Therefore, the proposed LED limits for metals are CWPC's limits, calculated for the mass at the rate at which LED proposes to use CWPC effluent. As an example, the limits for copper are shown below:

CWPC copper limits: daily maximum = 16.4 µg/L & average monthly limit = 11.2 µg/L

Therefore, LED mass limits:

0.0164 mg/L x 8.34 x 1.85 MGD = 0.25 pounds per day, daily maximum.
0.0112 mg/L x 8.34 x 1.85 MGD = 0.17 pounds per day, monthly average.

CWPC does not have silver limits, so silver mass limits were calculated from the concentrations indicated by the reasonable potential determination, shown in Appendix A.

LED will add chlorine in the cooling process to control biological growth. Therefore, a water quality-based chlorine limit is required in the NPDES permit. The water quality-based effluent limits are 0.05 mg/L for average monthly limit, and 0.12 mg/L for daily maximum. These limits are more stringent than the NSPS technology-based limits, and therefore replace the technology limits.

Water Quality-Based Effluent Limits for Reclaimed Water Source

Parameter	Monthly Average Limit	Maximum Daily Limit
Chlorine, mg/L	0.05	0.12
Ammonia-N, mg/L	16	36.1
Copper, lb/day	0.17	0.25
Lead, lb/day	0.048	0.069
Mercury, lb/day	0.0032	0.0048
Silver, lb/day	0.032	0.045

Mass-based limits are based on a flow rate of 1.85 MGD, the amount of effluent drawn from CWPC. LED foresees the possibility that on rare occasions, such as very warm summer days, cooling water use could exceed 1.85 MGD, and push the system capability of 2.2-2.3 MGD. If a mass-based limit for metals is exceeded and LED can show that it was due to water use in excess of 1.85 MGD, and that LED did not add any of the parametric mass, then LED will still be in compliance with the limits for that parameter.

Ground Water Source. If the Port's groundwater supply is used as the water source for the LED cooling towers, there will be no reduction of flow in the CWPC outfall such as would occur with the reclaimed water alternative. Therefore, the conservative toxicants present in the well water supply would be added to toxicants already present in the CWPC effluent. This will constitute an additional wastewater discharge to the Columbia River via the CWPC outfall. Therefore, water quality-based effluent limits are required for the same parameters included in the CWPC outfall, and any others that may have a reasonable potential to exceed water quality standards.

Reasonable potential and permit limit calculations are presented in Appendix C for several combinations of CWPC/LED blended effluents. These calculations include revised water quality criteria at the mixing zone boundaries affected by the hardness of the well water. The water quality-based effluent limits for conservative toxicants are provided below for the groundwater alternative. These limits apply when groundwater is used as all or a portion of the non-contact cooling water source.

Water Quality-Based Effluent Limits for Well Water Source

Parameter	Average Monthly Limit	Maximum Daily Limit
Chlorine, mg/L	0.05	0.12
Ammonia-N, mg/L	15.8	36.1
Copper, µg/L	17.7	25.9

Water Quality-Based Effluent Limits for Well Water Source

Parameter	Average Monthly Limit	Maximum Daily Limit
Lead, µg/L	14.3	20.9
Mercury, µg/L	0.37	0.54
Silver, µg/L	2.1	3.0

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. The proposed permit requires the Permittee to conduct toxicity testing for one year in order to characterize both the acute and chronic toxicity of the effluent.

Ordinarily the permit would require that whole effluent toxicity testing begin soon after facility start up, and a re-characterization about a year and a half before the end of the permit. However, that approach cannot be used for this permit cycle. LED is not scheduled to begin operation until late summer of 2003. The initial characterization would take place from late 2003 until late 2004, then it would immediate be time to start the re-characterization. Also, CWPC is currently undergoing substantial expansion and upgrades. Because of these changes, CWPC is waiting to characterize their effluent for WET until after the construction is completed, which is scheduled for early in 2004. LED would need to re-characterize their effluent for WET after this upgrade is completed anyway. For these reasons, LED's effluent characterization for WET will be delayed until the facility providing the reclaimed source water has completed its improvements. LED will perform the initial WET characterization testing in calendar year 2005.

If acute or chronic toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then a limit on the acute or chronic toxicity will be effective in the next permit cycle. The Permittee would be required to conduct WET testing in order to monitor for compliance with either an acute toxicity limit, a chronic toxicity limit, or both an acute and a chronic toxicity limit during the next permit cycle. The permit issued in the next permit cycle will also specify the procedures the Permittee must use to come back into compliance if the limits are exceeded.

LED may want to characterize both their effluent and a representative sample of the combined LED/CWPC effluent. This type of characterization will provide valuable data of the effect of both LED's effluent and the final, combined outfall.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center 360-407-7472 for a copy. Ecology recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, the Permittee will not be given WET limits and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that toxicity has not increased in the effluent.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard". The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant will not discharge additional chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

STORMWATER QUALITY LIMITATIONS

LED's NPDES permit will also provide coverage for industrial stormwater discharge requirements. Ecology's general stormwater permit is currently unavailable due to a lawsuit. Therefore, the requirements for a stormwater pollution prevention plan and associated Best Management Practices will be included in the NPDES permit. Because their stormwater eventually discharges to a 303(d) listed

waterbody- the Longview Ditches- LED will be required to conduct quarterly monitoring for turbidity. The Longview Ditches are listed for dissolved oxygen, fecal coliform, lead, and turbidity. Of these, turbidity is the only parameter of concern from the projected stormwater discharge from this facility.

LED submitted a stormwater application to Ecology on July 18, 2001. Onsite stormwater treatment facilities will include oil/water separators, biofiltration swales, and sediment retention basins. These facilities were designed to convey stormwater from a 100 year, 24 hour storm event. After this treatment, LED's stormwater discharges to the Port of Longview stormwater detention facility, the Finger Slough, which eventually discharges to the Longview Ditch system.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, significance of pollutants, and cost of monitoring.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

NON-ROUTINE AND UNANTICIPATED DISCHARGES

Occasionally, this facility may generate wastewater which is not characterized in their permit application because it is not a routine discharge and was not anticipated at the time of application. These typically are waters used to pressure test storage tanks or fire water systems or leaks from drinking water systems. These are typically clean waste waters but may be contaminated with pollutants. The permit contains an authorization for non-routine and unanticipated discharges. The permit requires a characterization of these waste waters for pollutants and examination of the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and opportunities for reuse, Ecology may authorize a direct discharge via the process wastewater outfall, sanitary sewer outfall, or through a stormwater outfall for

clean water, require the wastewater to be placed through the facilities wastewater treatment process or require the water to be reused.

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The proposed permit requires the Permittee to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs.

OPERATION AND MAINTENANCE MANUAL

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e)) and WAC 173-220-150 (1)(g). An operation and maintenance manual will be submitted as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). It has been determined that the implementation of the procedures in the Operation and Maintenance Manual is a reasonable measure to ensure compliance with the terms and limitations in the permit.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed permit be issued effective until July 2006, to mesh with the basin wide schedule for permit renewals in the Longview area. This will constitute a period of slightly less than 5 years, while 5 years is the standard permit issuance period.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Golder Associates.

2001. Longview Energy Development, L.L.C., Final Engineering Report for Water Supply and Wastewater Discharges. Golder Associates, Redmond, WA. August 22, 2001.

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on September 13 and 20, 2001 in Longview's *The Daily News* to inform the public that an application had been submitted and to invite comment on the issuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on November xx, 2001 in Longview's *The Daily News* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
300 Desmond Drive SE
Lacey, WA 98503

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 360.407-6286, or by writing to the address listed above.

This permit and fact sheet was written by Donald L. Reif, Environmental Engineer.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Responsible Corporate Officer-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at http.www:wa.gov.ecology.

Metals Concentrations

Pollutant Concentrations at the Edge of the CWPC Mixing Zone Boundaries

COPPER		CWPC Q	LED Q	Combined Discharge Q	CWPC Conc	LED Conc	Combined Discharge Conc	Dilution Factor w/ reflux	Ambient Conc	Conc At Mixing Zone Boundary	Water Quality Std	**Meets Water Quality Standard ?**
		mgd	mgd	mgd	ug/L	ug/L	ug/L		ug/L	ug/L	ug/L	
Acute												
2013 Max Day	No Project	62.4	0	62.4	16.4	90.2	16.40	6.32	1.62	3.96	5.14	**YES**
	w/Reuse	60.7	0.3	61	16.4	90.2	16.76	6.40	1.62	3.99	5.16	**YES**
2000 Max Day	No Project	25.3	0	25.3	16.4	90.2	16.40	9.30	1.62	3.21	4.86	**YES**
	w/Reuse	23.6	0.3	23.9	16.4	90.2	17.33	9.51	1.62	3.27	4.90	**YES**
Minimum Month	No Project	3.7	0	3.7	16.4	90.2	16.40	29.00	1.62	2.13	4.45	**YES**
	w/Reuse	2	0.3	2.3	16.4	90.2	26.03	37.80	1.62	2.27	4.56	**YES**
Chronic												
2013 Max Month	No Project	26	0	26	16.4	90.2	16.40	20.90	1.62	2.33	3.42	**YES**
	w/Reuse	24.3	0.3	24.6	16.4	90.2	17.30	21.70	1.62	2.34	3.43	**YES**
2000 Max Month	No Project	14.3	0	14.3	16.4	90.2	16.40	30.20	1.62	2.11	3.36	**YES**
	w/Reuse	12.6	0.3	12.9	16.4	90.2	18.12	32.40	1.62	2.13	3.37	**YES**
Minimum Month	No Project	5.3	0	5.3	16.4	90.2	16.40	60.90	1.62	1.86	3.30	**YES**
	w/Reuse	3.6	0.3	3.9	16.4	90.2	22.08	82.30	1.62	1.87	3.31	**YES**

Pollutant Concentrations at the Edge of the CWPC Mixing Zone Boundaries

LEAD		CWPC Q	LED Q	Combined Discharge Q	CWPC Conc	LED Conc	Combined Discharge Conc	Dilution Factor w/ reflux	Ambient Conc	Conc At Mixing Zone Boundary	Water Quality Std	**Meets Water Quality Standard ?**
		mgd	mgd	mgd	ug/L	ug/L	ug/L		ug/L	ug/L	ug/L	
Acute												
2013 Max Day	No Project	62.4	0	62.4	4.5	24.75	4.50	6.32	0.083	0.78	15.81	**YES**
	w/Reuse	60.7	0.3	61	4.5	24.75	4.60	6.40	0.083	0.79	15.89	**YES**
2000 Max Day	No Project	25.3	0	25.3	4.5	24.75	4.50	9.30	0.083	0.56	14.79	**YES**
	w/Reuse	23.6	0.3	23.9	4.5	24.75	4.75	9.51	0.083	0.57	14.94	**YES**
Minimum Month	No Project	3.7	0	3.7	4.5	24.75	4.50	29.00	0.083	0.24	13.32	**YES**
	w/Reuse	2	0.3	2.3	4.5	24.75	7.14	37.80	0.083	0.27	13.70	**YES**
Chronic												
2013 Max Month	No Project	26	0	26	4.5	24.75	4.50	20.90	0.083	0.29	0.53	**YES**
	w/Reuse	24.3	0.3	24.6	4.5	24.75	4.75	21.70	0.083	0.30	0.53	**YES**
2000 Max Month	No Project	14.3	0	14.3	4.5	24.75	4.50	30.20	0.083	0.23	0.52	**YES**
	w/Reuse	12.6	0.3	12.9	4.5	24.75	4.97	32.40	0.083	0.23	0.52	**YES**
Minimum Month	No Project	5.3	0	5.3	4.5	24.75	4.50	60.90	0.083	0.16	0.51	**YES**
	w/Reuse	3.6	0.3	3.9	4.5	24.75	6.06	82.30	0.083	0.16	0.51	**YES**

Pollutant Concentrations at the Edge of the CWPC Mixing Zone Boundaries

MERCURY		CWPC Q	LED Q	Combined Discharge Q	CWPC Conc	LED Conc	Combined Discharge Conc	Dilution Factor w/ reflux	Ambient Conc	Conc At Mixing Zone Boundary	Water Quality Std	**Meets Water Quality Standard ?**
		mgd	mgd	mgd	ug/L	ug/L	ug/L		ug/L	ug/L	ug/L	
Acute												
2013 Max Day	No Project	62.4	0	62.4	0.31	1.705	0.31	6.32	0	0.049	2.10	**YES**
	w/Reuse	60.7	0.3	61	0.31	1.705	0.32	6.40	0	0.050	2.10	**YES**
2000 Max Day	No Project	25.3	0	25.3	0.31	1.705	0.31	9.30	0	0.033	2.10	**YES**
	w/Reuse	23.6	0.3	23.9	0.31	1.705	0.33	9.51	0	0.034	2.10	**YES**
Minimum Month	No Project	3.7	0	3.7	0.31	1.705	0.31	29.00	0	0.011	2.10	**YES**
	w/Reuse	2	0.3	2.3	0.31	1.705	0.49	37.80	0	0.013	2.10	**YES**
Chronic												
2013 Max Month	No Project	26	0	26	0.31	1.705	0.31	20.90	0	0.015	0.012	**YES**
	w/Reuse	24.3	0.3	24.6	0.31	1.705	0.33	21.70	0	0.015	0.012	**YES**
2000 Max Month	No Project	14.3	0	14.3	0.31	1.705	0.31	30.20	0	0.010	0.012	**YES**
	w/Reuse	12.6	0.3	12.9	0.31	1.705	0.34	32.40	0	0.011	0.012	**YES**
Minimum Month	No Project	5.3	0	5.3	0.31	1.705	0.31	60.90	0	0.005	0.012	**YES**
	w/Reuse	3.6	0.3	3.9	0.31	1.705	0.42	82.30	0	0.005	0.012	**YES**

Reasonable Potential Worksheet:

				State Water Quality Standard		Max concentration at edge of...							
	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Concentration (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	**LIMIT REQ'D?**	ACUTE Max effluent conc. measured (metals as total recoverable)	CHRONIC Max effluent conc. measured (metals as total recoverable)	Dummy Multiplier	Acute Dil'n Factor	Chronic
Parameter	Acute	Chronic	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*		*ug/L*	*ug/L*			
Reuse Alternative - 2013													
Max Flows													
Chlorine			0.00	19	11	0.00	0.00	**NO**	0.01	0.01	1.00	6.40	21.70
Ammonia-N			60	5735	1131	4068.88	1280.31	**YES**	25717	26541	1.00	6.40	21.70
Arsenic	1.000	1.000	1.45	360	190	2.26	1.70	**NO**	6.61	6.82	1.00	6.40	21.70
Cadmium	0.997	0.968	0.050	0.937	0.365	0.87	0.29	**NO**	5.29	5.45	1.00	6.40	21.70
Copper	0.960	0.960	1.620	5.16	3.43	9.56	4.04	**YES**	54.65	56.40	1.00	6.40	21.70
Lead	0.975	0.995	0.083	15.891	0.532	0.79	0.30	**NO**	4.75	4.90	1.00	6.40	21.70
Mercury	0.850	1.000	0.000	2.100	0.012	0.16	0.0565	**YES**	1.19	1.23	1.00	6.40	21.70
Nickel	0.998	0.997	0.940	484.9	48.0	4.50	2.02	**NO**	23.76	24.52	1.00	6.40	21.70
Silver	0.850		0.000	0.391	N/A	1.75	0.63	**YES**	13.21	13.64	1.00	6.40	21.70
Zinc	0.978	0.986	4.086	39.1	31.9	17.61	8.24	**NO**	92.66	95.63	1.00	6.40	21.70
Reuse Alternative - 2000													
Max Flows													
Chlorine			0.00	19.000	11.000	0.00	0.00	**NO**	0.01	0.01	1.00	9.51	32.40
Ammonia-N			0.05	5735.000	1131.000	2795.12	857.86	**NO**	26581	27793	1.00	9.51	32.40
Arsenic	1.000	1.000	1.45	360.000	190.000	2.02	1.63	**NO**	6.83	7.14	1.00	9.51	32.40
Cadmium	0.999	0.968	0.050	0.883	0.360	0.62	0.22	**NO**	5.46	5.71	1.00	9.51	32.40
Copper	0.960	0.960	1.620	4.902	3.373	7.15	3.32	**YES**	56.48	59.06	1.00	9.51	32.40
Lead	0.983	0.998	0.083	14.944	0.521	0.58	0.24	**NO**	4.91	5.14	1.00	9.51	32.40
Mercury	0.850	1.000	0.000	2.100	0.012	0.11	0.0396	**YES**	1.23	1.28	1.00	9.51	32.40

Nickel	0.998	0.997	0.940	463.018	47.274	3.42	1.70	NO	24.56	25.68	1.00	9.51	32.40
Silver	0.850		0.000	0.356	N/A	1.22	0.44	YES	13.66	14.28	1.00	9.51	32.40
Zinc	0.978	0.986	4.090	37.375	31.371	13.51	7.01	NO	95.78	100.14	1.00	9.51	32.40
Reuse Alternative - Min Flows													
Chlorine			0.00	19.000	11.000	0.00	0.00	NO	0.02	0.01	1.00	37.80	82.30
Ammonia			0.05	5735.000	1131.000	1056.34	411.58	NO	39928	33869	1.00	37.80	82.30
Arsenic	1.000	1.000	1.45	360.000	190.000	1.68	1.54	NO	10.26	8.70	1.00	37.80	82.30
Cadmium	1.003	0.969	0.050	0.812	0.354	0.27	0.13	NO	8.21	6.96	1.00	37.80	82.30
Copper	0.960	0.960	1.620	4.557	3.308	3.73	2.44	NO	84.84	71.97	1.00	37.80	82.30
Lead	0.995	1.001	0.083	13.696	0.507	0.27	0.16	NO	7.38	6.26	1.00	37.80	82.30
Mercury	0.850	1.000	0.000	2.100	0.012	0.04	0.0190	YES	1.84	1.56	1.00	37.80	82.30
Nickel	0.998	0.997	0.940	433.649	46.370	1.89	1.31	NO	36.89	31.29	1.00	37.80	82.30
Silver	0.850		0.000	0.311	N/A	0.46	0.21	YES	20.52	17.40	1.00	37.80	82.30
Zinc	0.978	0.986	4.090	35.000	30.771	7.70	5.50	NO	143.87	122.04	1.00	37.80	82.30
Well Water Alternative - 2013 Maximum Flows													
Chlorine			0.00	19.000	11.000	0.00	0.00	NO	0.01	0.01	1.00	6.30	20.60
Ammonia			0.05	5735.000	1131.000	3961.95	1198.36	YES	24960	24685	1.00	6.30	20.60
Arsenic	1.000	1.000	1.45	360.000	190.000	3.80	2.82	NO	16.27	29.73	1.00	6.30	20.60
Cadmium	0.996	0.967	0.050	0.967	0.372	0.93	0.34	NO	5.62	6.24	1.00	6.30	20.60
Copper	0.960	0.960	1.620	5.302	3.499	9.90	4.32	YES	56.05	59.61	1.00	6.30	20.60
Lead	0.971	0.992	0.083	16.407	0.546	1.54	0.86	YES	9.54	16.26	1.00	6.30	20.60
Mercury	0.850	1.000	0.000	2.100	0.012	0.16	0.0554	YES	1.15	1.14	1.00	6.30	20.60
Nickel	0.998	0.997	0.940	496.741	49.020	4.60	2.11	NO	24.05	25.15	1.00	6.30	20.60
Silver	0.850		0.000	0.410	N/A	1.73	0.62	YES	12.82	12.68	1.00	6.30	20.60
Zinc	0.978	0.986	4.090	40.101	32.532	17.56	8.26	NO	90.92	91.28	1.00	6.30	20.60
Well Water Alternative - 2000 Maximum Flows													
Chlorine			0.00	19.000	11.000	0.00	0.00	NO	0.01	0.01	1.00	9.24	29.50
Ammonia			0.05	5735.000	1131.000	2670.22	824.12	NO	24672	24310	1.00	9.24	29.50
Arsenic	1.000	1.000	1.45	360.000	190.000	4.58	3.03	NO	30.36	48.13	1.00	9.24	29.50
Cadmium	0.997	0.967	0.050	0.931	0.368	0.72	0.28	NO	6.27	7.09	1.00	9.24	29.50
Copper	0.960	0.960	1.620	5.129	3.463	7.66	3.66	YES	59.78	64.48	1.00	9.24	29.50
Lead	0.976	0.993	0.083	15.771	0.539	1.83	0.94	YES	16.57	25.43	1.00	9.24	29.50

Mercury	0.850	1.000	0.000	2.100	0.012	0.10	0.0381	**YES**	1.14	1.12	1.00	9.24	29.50
Nickel	0.998	0.997	0.940	482.160	48.526	3.56	1.81	**NO**	25.20	26.65	1.00	9.24	29.50
Silver	0.850		0.000	0.386	N/A	1.17	0.42	**YES**	12.68	12.49	1.00	9.24	29.50
Zinc	0.978	0.986	4.090	38.922	32.204	13.31	7.02	**NO**	91.30	91.78	1.00	9.24	29.50
Well Water Alternative - Minimum Flows													
Chlorine			0.00	19.000	11.000	0.00	0.00	**NO**	0.01	0.01	1.00	27.00	57.20
Ammonia			0.05	5735.000	1131.000	820.97	401.99	**NO**	22165	22991	1.00	27.00	57.20
Arsenic	1.000	1.000	1.45	360.000	190.000	7.07	3.40	**NO**	153.27	112.77	1.00	27.00	57.20
Cadmium	0.998	0.968	0.050	0.909	0.366	0.49	0.22	**NO**	11.93	10.07	1.00	27.00	57.20
Copper	0.960	0.960	1.620	5.028	3.432	4.84	2.96	**NO**	92.28	81.57	1.00	27.00	57.20
Lead	0.980	0.995	0.083	15.401	0.533	2.91	1.08	**YES**	77.88	57.68	1.00	27.00	57.20
Mercury	0.850	1.000	0.000	2.100	0.012	0.03	0.0186	**YES**	1.02	1.06	1.00	27.00	57.20
Nickel	0.998	0.997	0.940	473.638	48.097	2.21	1.48	**NO**	35.24	31.93	1.00	27.00	57.20
Silver	0.850		0.000	0.373	N/A	0.36	0.21	**NO**	11.39	11.81	1.00	27.00	57.20
Zinc	0.978	0.986	4.090	38.233	31.919	7.37	5.63	**NO**	94.62	93.53	1.00	27.00	57.20

Permit Limit Calculation Summary

PARAMETER	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator Acute	Metal Criteria Translator Chronic	Ambient Concentration *ug/L*	Water Quality Standard Acute *ug/L*	Water Quality Standard Chronic *ug/L*	Average Monthly Limit (AML) ug/L	Maximum Daily Limit (MDL) ug/L	Comments
2013 Maximum Flow										
Chlorine	6.30	20.60			0.00	19.000	11.000	**45.72**	**119.70**	
Ammonia	6.30	20.60			0.05	5735.000	1131.000	**15756.35**	**36130.2**	
Arsenic	6.30	20.60	1.000	1.000	1.45	360.000	190.000	**1549.42**	**2260.32**	
Cadmium	6.30	20.60	0.996	0.967	0.05	0.967	0.372	**4.01**	**5.85**	
Copper	6.30	20.60	0.960	0.960	1.62	5.302	3.499	**17.72**	**25.85**	
Lead	6.30	20.60	0.971	0.992	0.08	16.407	0.546	**11.00**	**16.05**	

Mercury	6.30	20.60	0.850	1.000	0.00	2.100	0.012	**0.28**	**0.41**
Nickel	6.30	20.60	0.998	0.997	0.94	496.741	49.020	**1119.70**	**1633.44**
Silver	6.30	20.60	0.850		0.00	0.410	10000.000	**2.09**	**3.04**
Zinc	6.30	20.60	0.978	0.986	4.09	40.101	32.532	**161.88**	**236.16**
2000 Maximum Flow									
Chlorine	9.24	29.50			0.00	19.000	11.000	**67.06**	**175.56**
Ammonia	9.24	29.50			0.05	5735.000	1131.000	**23109.31**	**52991.0**
Arsenic	9.24	29.50	1.000	1.000	1.45	360.000	190.000	**2272.02**	**3314.45**
Cadmium	9.24	29.50	0.997	0.967	0.05	0.931	0.368	**5.63**	**8.21**
Copper	9.24	29.50	0.960	0.960	1.62	5.129	3.463	**24.31**	**35.46**
Lead	9.24	29.50	0.976	0.993	0.08	15.771	0.539	**15.44**	**22.53**
Mercury	9.24	29.50	0.850	1.000	0.00	2.100	0.012	**0.40**	**0.58**
Nickel	9.24	29.50	0.998	0.997	0.94	482.160	48.526	**1586.51**	**2314.42**
Silver	9.24	29.50	0.850		0.00	0.386	10000.000	**2.88**	**4.20**
Zinc	9.24	29.50	0.978	0.986	4.09	38.922	32.204	**228.45**	**333.27**
Minimum Flow									
Chlorine	27.00	57.20			0.00	19.000	11.000	**195.96**	**513.00**
Ammonia	27.00	57.20			0.05	5735.000	1131.000	**46341.90**	**106264.6**
Arsenic	27.00	57.20	1.000	1.000	1.45	360.000	190.000	**6637.11**	**9682.30**
Cadmium	27.00	57.20	0.998	0.968	0.05	0.909	0.366	**15.97**	**23.30**
Copper	27.00	57.20	0.960	0.960	1.62	5.028	3.432	**66.85**	**97.53**
Lead	27.00	57.20	0.980	0.995	0.08	15.401	0.533	**29.40**	**42.89**
Mercury	27.00	57.20	0.850	1.000	0.00	2.100	0.012	**0.77**	**1.13**
Nickel	27.00	57.20	0.998	0.997	0.94	473.638	48.097	**3047.54**	**4445.80**
Silver	27.00	57.20	0.850		0.00	0.373	10000.000	**8.11**	**11.83**
Zinc	27.00	57.20	0.978	0.986	4.09	38.233	31.919	**649.01**	**946.79**

APPENDIX D--RESPONSE TO COMMENTS

Ecology received one set of comments from William P. Fox, P.E. of Cosmopolitan Engineering Group, on behalf of Enron. The letter contained three comments. Each comments is copied in its' entirety (in italics), and the Ecology response follows.

Comment #1: *There is an inconsistency in the well water limits for lead and mercury. The limits in the permit (page 7) and fact sheet text (page 18) are higher than Appendix C of the fact sheet (bottom line page 32 and top line page 33) and the approved engineering report dated August 23 (Table 4-17). The permit and fact sheet values are holdovers from the first draft of the engineering report submitted in June. One of Ecology's comments on the draft engineering report reduced chronic dilution, which resulted in lower mercury and lead limits in the engineering report and Appendix C of the fact sheet. The correct limits as approved by Ecology should be per the Appendix C tables: Mercury AML 0.28 ug/L and MDL 0.41 ug/L- Lead AML 11 ug/L and MDL 16 ug/L.*

Ecology agrees, and has made the appropriate change to the permit well water section to incorporate these correct limits.

Comment #2: *The report submittals on page 4 of the draft permit require summary reports for acute and chronic toxicity on Dec. 31, 2005. Normally, permittees are allowed 90 days after the last test. However, the final acute and chronic toxicity tests must be conducted within the same 90-day period. We request that the submittal date for the acute and chronic characterization summary reports be changed to 90 days following the last test.*

The commentor is correct, and the requested change has been made.

Comment #3: *There is a typo in the title for condition G15 on page 27 of the draft permit. "ENALTIES" should be "PENALTIES".*

The typo has been corrected.

Thank you for the comments.